WESTERN NATURE STUDIES

By J. H. PAUL.

HOW TO MAKE AND KEEP A LAWN.

The lawn possesses a double value; it is of both aesthetic and economic importance. Every effort made to beautify the outdoor surroundings includes a lawn. Green grass is the best and almost the only setting for the various effects of landscape gardening. It is indispensable to all our ideas of rural beauty. Says Corbett:

"The herbage of the field is the primary dependence of all animal life, and it is the green color, the sweet fragrance and the soothing effect of nature which comes from well-kept green swards that make them so congenial to man. Grass is nature's balm and healing for all erosive scars. Nature abhors rough edges and broken places, and immediately proceeds to cover such ugly spots with green grass. Man likes to get his feet upon the soil, but better still upon the soft, yielding green sward. Rich rugs and carpets do not give the elastic spring that the well-made and well-kept greensward yields."

Prof. Norothrup Explains.

At his last lecture before the nature classes at the university, Professor Northrup explained how to succeed in making a lawn.

The first step is to prepare the soil. In general the soil for a lawn must first be cultivated to a sufficient depth, say eight or ten inches, just the same as for the larger farm crops; for though lawn grass at first is a shallow feeder, it may finally be induced to go deep for its food; and the ground is prepared with that object in view. Shallow cultivation will permit the lawn to run out in a few years or will make constant fertilizing a necessity. The soil should first be well pulverized in order to set free the food required by the plants; the top soil layer especially should be finely worked just before seeding.

Sowing the Grass.

Of all the lawn grasses yet extensively tried Kentucky blue grass is the best for our latitude. It may be planted in either the fall or the spring; but early spring planting gives the best results in most parts of this state. Lawn grass may be made to grow even if planted in summer, but it then requires much care and a covering of fine-cut grass as a shield against the sun's heat. The seed should be pure—unmixed with weed seeds and of high germinating power. Good blue grass seeed weighs about twenty-two pounds per bushel; inferior seed only about twelve pounds. The select seed is the most economical to buy.

The safest course is to use an abundance of seed. With economy and care one quart of blue grass seed will be sufficient for 300 square feet of lawn, but it is well for amateur gardeners to double or even treble this amount. Two or three bushels of seed per acre may be used in large areas. White clover seed may be mixed with the blue grass, since the clover is able to re-establish itself after periods of drought. Clover affords a protection to the young blue grass, which will finally displace the clover.

The seed should be divided into two parts and sown broadcast in two directions, the second sowing to be at right angles with the direction of the first. The soil must be very loose and fine for the first few inches from the surface, and, for the sake of moisture, the seed must be brought in close contact with the soil. The seed is simply raked in and then gently sprinkled night and morning.

"It is better to use an excessive amount of seed and allow natural selection to eliminate the weak specimens rather than to seed sparsely with the hope that the natural habits of the plants will be sufficient to enable them to take possession of the entire area. A thick stand of plants of the desired species gives little opportunity for the development of weeds, while a thin stand of the same species offers a place for the growth of weeds, which may become determined competitors for the possession of the ground, thus subjecting the gardener to the necessity of eliminating the weeds or of re-establishing the lawn. Heavy seeding of grass is, therefore, a very important matter in the establishment of lawns."

The Soil for Lawns.

A soil moderately moist and with a strong percentage of clay is the ideal seedbed for grasses that form lawns. It should retain moisture without becoming too wet. Such a soil is heavy and compact rather than light, loose and sandy. A clay subsoil covered by a strong clay loam or by a sandy loam, should be the aim in the preparation of lawn beds. If sand is the only foundation, a top dressing of two or three inches of clay should be applied to it and then mixed in with the first six inches of the sand. A crop of clover or alfalfa may first be grown and the foliage plowed under, so as to mix an abundance of vegetable matter with the soil. Stable manure may be plentifully used, since it is hardly possible to make the soil too rich. Forty to sixty loads per acre is not too much to apply.

The soil for lawns should be well supplied with the chief plant foods—nitrogen, potash and phosphoric acid. Most of the soils in the semi-arid regions are naturally fertile, but many of them are deficient in nitrogen, which is especially necessary for the lawn. Nitrogen increases the foliage growth, and it is the leaves that are desired in the case of lawn growing. If either from exhaustion or from newness the soil for the prospective lawn is infertile, the plant food can be restored in many ways. The first of these ways is by the application to the land of stable manures (preferably those that are well rotted). Manure contains a portion of the plant food which was fed to the farm animals, and is especially rich in the element nitrogen. The two other plant foods, when lacking, are supplied in commercial fertilizers.

Establishing the Lawn.

When the grass comes up, do not clip it too soon; and after the first cutting allow the clipped grass to remain on the lawn. Work this grass into the sod; it is a good fertilizer and helps to make the surface cushion. Set the mower to a height of two inches for regular clippings, and cut so frequently that a good part of the short clip may be left upon the lawn to protect and nourish the grass roots. At first the grass is a very shallow feeder and the top layer of soil becomes poor before the grass is thoroughly established. If the grass is all carried away, such weeds as the dandelion, shepherd's purse and storksbill, which have long, deep roots from the first, obtain an immense advantage over the grass and may displace it. It is of little use to cut off the tops and a small portion of the roots of dandelions, since that operation merely multiples them. The better way is to give the grass a good start in the spring without mowing, not, however, permitting it to go to seed; then to cut it while the dandelion heads are erect and before they have gone to seed; then to dig them out and sow new grass seed in the holes thus made. The lawn grass will vanquish the weeds if it is given a good opportunity to do so. Only where the soil is rich and the growth very luxuriant is it necessary to rake off the clippings, which are not detrimental on poor soils unless in such quantity as to become unsightly.

Frequent and light clipping, rolling in early spring, covering in late fall with a mulch of well decomposed stable manure, which is so fine that it will be carried beneath the surface of the grass by the rains and snows of winter, and finally a top dressing of fine ground bone in the spring—these are the general directions for the maintenance of the lawn.

The Sodding of Banks.

Upon sloping banks sods should be secured from other lawns and well pressed or rolled upon a prepared bed so as to unite the sod roots with the under soil. Where this is not practicable, the sods may be cut into small pieces and rolled into the sloping soil along with grass seed. Small tufts of grass or pieces of turf may be planted at intervals in the same way.

In order to cover the entire surface of the bank or terrace, a common method is to cut the sod into pieces a foot square and about two or two and one-half inches thick. This answers well upon small areas if the sod is cut to a uniform thickness and the surface of the groud is made very smooth; otherwise, there is more or less difficulty in getting the squares of sod adjusted evenly so as to produce a smooth surface. Considerable ramming or pounding is necessary in order to establish the desired smoothness, unless great care is exercised in cutting the turf to a uniform thickness and in providing a smooth surface to lay it upon.

Corbett suggests that upon steep banks which are of a sandy nature, and under conditions where it is difficult to use sod, a pleasing appearance can be produced by the use of Japanese honeysuckle (Lonicera japonica). This plant is capable of establishing and maintaining itself under adverse conditions, and it makes a good soil binder and has the advantage of being evergreen.

Places for Trees and Shrubs.

Trees or shrubs on lawns should be upon its boundaries, near the building and in the background. As one would not desire the furniture in the parlor to take up three-fourths of the room, so the green carpet of the lawn should not be covered with such furniture as trees and flower beds. Paths and drives across lawns are for utility, not for beauty; they should be straight, unless there should be a legitimate reason for a curve. Sometimes there will exist naturally a small hill or clump of trees and a curve is rightly made in order to spare them. And curves are made to seem natural by planting shrubs or trees, but not flowers, in the angle. Gravel walks in lawns are preferred to pavements, and should be below the grade so as to be hidden from the observer a few hundred feet away.

Trees and shrubs should be used to conceal unsightly objects in the foreground or in the background, to give the idea of surprise or discovery in passing from one portion of a large estate to another, and for the purpose of increasing the apparent length in drives which double back upon themselves in parks and pleasure grounds. Evergreens which are used upon the lawn should have the lower branches preserved so as to produce the effect of arising from the ground not merely by a single stem but as a mass.

Results of Nitrogen.

A word further as to plant foods. The results of plenty of nitrogen are seen at once in the greener and more abundant leaf, and this is what we desire in the case of lawn growing. Nitrogen makes the whole plant go ahead, and the farmer is likely to think more of nitrogen than of phosphorus and potash; yet he will have to wait till harvest and actually weigh the product to see the results. Nitrogen increases the vegetative parts of the plant, and an excess of it tends to make the plant go on growing too long and defers the production of flower and seed; it puts off the ripening. Excessive nitrogen has doubled the amount of wheat straw, but reduced the per cent of wheat grain from 62 down to 48 per cent.

Phosphoric acid applied to the soil hurries on the production of flowers and seed, the ripening of the grain. Phosphorus is of enormous value in pushing the crop on to ripeness. It is also an extraordinary stimulant to the formation of roots and of side shoots.

It is the special action of potash to aid the plant in making carbohydrates, sugar, and starch. This process cannot go forward unless potash is present; to increase this process, increase the potash. Best yields at Rothamsted have been more than doubled by the addition of potash. Each of the three fertilizers has a specific effect and should be applied according to the specific needs of the crop.

It will be seen that the chief fertilizer required for the lawn in case the soil is exhausted or is new and "raw," is nitrogen. In the west, most fortunately, we have a ready means of adding nitrogent to the soil as well as by the application of manures. By the growing of leguminous crops on the soil for a few years we can prepare the land for a very successful lawn. It is thus possible to secure all the nitrogen that is necessary for abundant foliage, either from the air, by planting lucern or similar crops, or from the barnyard by taking the manures. If for other purposes than lawnmaking we should need to purchase fertilizing materials, only those containing potash and phosphoric acid need be bought. A recent authority says that every farmer should grow leguminous crops as extensively as possible, for his own use in feeding, for sale or for plowing under. The importance of these crops will become greater and greater as the nitrogen in the soil decreases. Nitrogen is the most expensive kind of fertilizer, and, so far as possible, it should be secured from the air and not by purchases in feeding stuffs or fertilizers. Leguminous crops do not add to the store of phosphoric acid or potash in the soil, and may, indeed, require these fertilizers to effect their best growth.

An excess of nitrogen has certain disadvantages; it renders plants more susceptible to disease, especially fungus disease. Mangolds at Rothamsted are swept every year with fungus disease, while three feet away are perfectly sound, healthful beets. The infection is alike in both places, but it takes only on the plots having an excess of nitrogen. The diseased leaves are seen torn, shriveled and rotten. Wheat fields get rusty and weeds are mildewed on high nitrogen land.